WOOPA building

by Asso VAD / 2014-10-23 11:47:07 / France / 8830 / FR

Primary energy need :

114.2 kWhep/m².an

(Calculation method : RT 2005)

ENERGY CONSUMPTION

Economical building *Building*

< 50	A
51 à 90	B
91 à 150	C
151 à 230	D
231 à 330	E
331 à 450	F
> 450	G

Energy-intensive building

Building Type : Other building
Construction Year : 2011
Delivery year : 2011
Address 1 - street : 10 avenue des Canuts 69517 VAULX-EN-VELIN, France
Climate zone :

Net Floor Area : 20 000 m² SHON
Construction/refurbishment cost : 44 000 000 €
Number of none : 800 none
Cost/m2 : 2200 €/m²

General information

- Positive energy and zero carbon building
- Prizewinner of the PREBAT call for proposals

Program:

- Offices and shops
- 85 housings
- A nursery (capacity of 40 children)

This building hosts about 500 employee and hosues 300 residents.

Sustainable development approach of the project owner

- Positive energy and zero carbon building
- Prizewinner of the PREBAT call for proposals

Relationship of the building with its environment:

- Partial redistribution of the floor space to the public domain: a driveway for “soft” means of transportation though the center of the block. North-oriented little square in the continuity of the public area close to the tram station.
- Viewpoints and visual perspectives: a divided block in order to give multiple viewpoints to the pedestrians, to let natural light in and to avoid vis-à-vis.
- Bioclimatic approach to minimize needs and provide excellent thermal and visual comforts.

Choice of processes and construction products
- Entirely prefabricated frontage
- Central area in the ground

Comforts
- Summer and visual comfort: optimization of glazes surfaces thanks to a 80-meter-long southern façade. Consideration of sunlight: the tallest buildings are on the North, the smallest on the South to increase amount of sunlight in the block. A glazed patiois found in the center of the “Quadriplus” wing and glass atrium is used for circulation and as a connection to the “NEF” and “Quadriplus” wings. Indoor and outdoor moveable shading devices.
- Acoustic comfort: no false ceiling.

Operations and maintenance management:
An important work has been done over a period of 5 months to overcome difficulties of counting (wrong cabling of the CTM, no files creation, failing temperature sensors…) so that the measures reflect reality
- Monitoring and data analysis by Etamine as part of the PREBAT and implementation of corrective actions
- Monthly meetings of the steering group includingof the contractor, the engineering consultancy offices and users.
- Letters to the users to correct their behavior.

Miscellaneous
- Programmatic diversity: the building welcomes the main fields of the economy: inter-professional federations, social-service organizations (ethical banking, social housing – renting and buying), cooperative (organic food), construction companies
- Collaboration, social and environmental projects, local development…

Architectural description

Program:
Basement: 6900m² - 2 levels of parking (199 spaces for offices, 123 spaces for the housings).
Ground floor: 2,400m² divided between business and tertiary. 13,600 m² on 7 floors structured between 6 floors of offices and a 7th floor consists of 400m² of meeting rooms and common areas (gym, relaxation room, dining room) and 315m² of terraces (140 m² on the 6th floor and 175m² on the 7th).

See more details about this project

http://www.ville-amenagement-durable.org/fichiers/j6kEy_7pDvN7tJOz08UVUw.html
http://www.woopa.coop/

Stakeholders

Stakeholders

Function : Contractor

PREMIER PLAN

With contracting offices and shops

Function : Contractor

RHONE SAONE HABITAT

http://www.rhonesaonehabitat.fr/
Housing project owner

Function : Construction Manager

ETAMINE

http://www.etamine.coop/

Function : Assistance to the Contracting Authority

SOHO Architectures

http://www.soho-archi.com/

Function : Construction Manager

Thomas RAU

Function : Construction Manager

Quadriplus groupe

http://www.quadriplus-groupe.com/

Function : Construction Manager

GC Construction

http://gcconstructions.fr/

Energy

Energy consumption

Primary energy need : 114,20 kWhep/m^2.an

Calculation method : RT 2005

Breakdown for energy consumption : Heating: 15.6
Refresh: 2.0
Ventilation: 11.0
Lighting: 16.0
Hydraulics back up: 2.3
Office equipment: 41.8
Parking, lift: 10.2
Additional oil consumption (cogeneration) for heat resale to housings and additional electricity production: 15.3

Envelope performance

Envelope U-Value : 0,63 $W.m^{-2}.K^{-1}$

More information :
- Concrete structure, frontage in light wood-frame, 17 cm glass wool, additional inside lining of 5 cm glass wool.
- Ventilated triple glazing and integrated blinds, aluminum frame.

Air Tightness Value : 0,58

Renewables & systems

Systems

Heating system :
- Individual gas boiler
- Combined Heat and Power
- Low temperature floor heating
- Radiant ceiling
- Wood boiler

Hot water system :
- Solar Thermal

Cooling system :
- Floor cooling
- Radiant ceiling
- No cooling system

Ventilation system :
- Double flow heat exchanger

Renewable systems :
- Solar photovoltaic
- Solar Thermal
- Wood boiler

Other information on HVAC :
Heating - cooling: wood pellet boiler of 96 kW, reserve gas backup, vegetable oil cogeneration, active inert slab for heating and "natural" cooling using only groundwater. The system of active slab brings high inertia in summer and therefore a great comfort for the occupants.
Emission by the floor and ceiling (no false ceiling).
Grids separation between the facades.
Ventilation: double flow comfort ventilation with 80% energy recovery.
Direct and indirect lighting of offices ensure by individual masts. Very low installed lighting power (<5 W / mÂ²). Motion sensor and automatic gradation in

accordance with natural light.

135m² of thermal solar collectors for housing hot water.
1600 m² of photovoltaic panels on the roof of the offices and housing (228 kWp).
Electrical production: 213,000 kWh by photovoltaic system and 133,000 kWh by cogeneration

Smart Building

BMS :
BMC associated to 300 gauges (temperature, humidity, consumption)

Environment

Urban environment

Access by public transportation: T3 tramline, metroline A;
Park and Ride of 470 parking lots for cars and 470 others for bikes.
RhônExpress, link between Part Dieu Station and Saint Exupery airport.

Costs

Construction and exploitation costs

Total cost of the building : 44 000 000 €

Health and comfort

Water management

Recovery of rainwater for sanitary of offices (25 m3 cistern, water needs of sanitaries covered up to 35%).

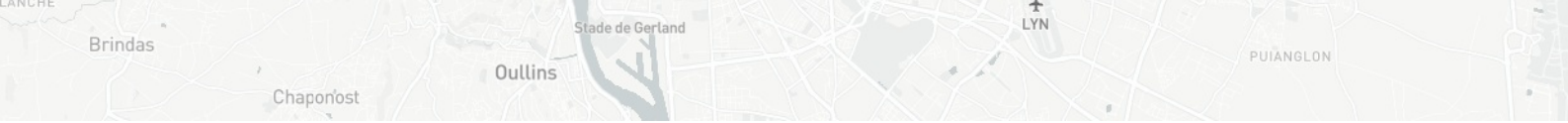
Indoor Air quality

Double flow ventilation

Carbon

Life Cycle Analysis

Eco-design material : Wood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Oullins
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